

REMARKS

By the above amendment, independent claims 5 and 6, have been amended to change the positioning of a previously recited portion for clarification purposes. That is, the last paragraph of each claim which previously recited "displaying together with said map format on said screen an image of a defect candidate selected from the outputted images of the extracted defect candidates" (emphasis added) has been amended to now recite "displaying on said screen an image of a defect candidate selected from the output images of the extracted defect candidates together with said map format on said screen" (emphasis added). Thus, it is apparent that such claims have been amended merely for clarification purposes since the Examiner, as will be discussed below, has not given proper consideration to the claimed features. Furthermore, independent claim 16 has been amended to provide antecedent basis for the phrase "via the network" by inserting the phrase "via a network" in an early portion of the claim correcting an informality in punctuation, and clarifying that the defect candidate data of location information is displayed together with the defect candidate image which is selected from the outputted images of the detected defect candidate. Hereagain, it is apparent that the amendment is of a clarifying nature and applicants submit that the amendments of claims 5, 6 and 16 do not raise any new issues requiring further search and/or consideration.

The rejection of claims 3, 5 - 6, 12 - 16 and 25 - 30 under 35 USC 103(a) as obvious over US Patent No. 6,047,083 issued to Mizuno and US Patent No. 6,097,887 issued to Hardikar et al and the rejection of claims of claims 10 - 11 and

20 - 24 as being unpatentable over Mizuno and Hardikar et al further in view of US Patent No. 6,539,106 issued to Gallarda et al, such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

In applying Mizuno to the claimed invention, the Examiner contends in paragraph 10 at page 3 of the office action that:

"Mizuno discloses designating the defect candidate location data displayed in a map format on the displayed map and thereby simultaneously displaying an image of a defect candidate corresponding to the designated location on the screen (see for example col. 7, lines 18 - 30). Namely, Mizuno discloses the normalized defect image(s) being overwritten on the specified points on the wafer (see Fig. 6a-b) wherein the normalization method is described in col. 6, lines 12 - 33. Here the term "an image of a defect" has to be broadly interpreted to include any visible representation of the defect. (emphasis added)

Contrary to the Examiner's position, applicants submit the Examiner's broad interpretation of "an image of a defect" does not relate to the claimed subject matter.

Turning to claim 5, for example, recite the features of irradiating either a charged particle or a light on a surface of a substrate in which a pattern is formed, producing an image of the substrate surface by detecting any of a reflected light, a secondary electron, reflected electron, transmitted electron, or absorbed electron generated from the substrate as a result of the irradiation, producing a digital image, comparing the digital image against a reference image, extracting a defect candidate and outputting an image of the extracted defect candidate and data comprising the location of this defect candidate. As is apparent, the image of the extracted defect candidate and location data thereof are separate elements of the claim and represent different information. That is, an image of an extracted defect candidate is in fact, an image of the defect as obtained from the result of irradiation whereas,

location data is not an image of the defect. In accordance with the present invention, as recited in claim 5 for example, the defect candidate location data is displayed in a map format, as shown in the map display portion 55 of Figure 8 of the drawings of this application. As described in the specification of this application, the location of the extracted defect candidates is displayed on the map display portion and by moving the current location symbol 59 to a desired extracted candidate defect location, and by clicking the location of the defect to be viewed, an image of the selected defect is displayed on the image display portion 56, as described in the paragraph bridging pages 13 and 14 of the specification of this application. The last paragraph of claims 5 and 6, as amended, provide the feature of "displaying on said screen an image of a defect candidate selected from the outputted images of the extracted defect candidates together with said map format on said screen, said displayed image of the defect candidate being displayed corresponding to location data designated on said map format displayed on said screen" (emphasis added), while claim 16, as amended, recites "in the step of simultaneously displaying, said defect candidate data of location information is displayed in a map format on said screen and said defect candidate image which is simultaneously displayed on said screen is said defect candidate image which is selected from the outputted images of the detected defect candidates, corresponding to location data designated on said map format displayed on said screen" (emphasis added). Thus, from the images of the detected or extracted defect candidates, the location of which is displayed in a map format on the screen there is also displayed an image of a selected defect candidate, which is selected from the outputted images of the extracted or detected defect candidates. Thus, the claims require outputting images of detected or

extracted defect candidates, displaying in a map format the location of such extracted or detected defect candidates on a screen, and also displaying together with the map format an image of the defect candidate which was previously outputted and which is selected to be displayed corresponding to location data designated on the map format displayed on the screen. As such, contrary to the Examiner's contention concerning broad interpretation, applicants have specified that the image which is displayed is a selected one of previously outputted images of a defect candidate, which obtained in response to irradiation of the substrate, in the manner defined.

Applicants submit that the aforementioned features are not disclosed or taught by Mizuno. Applicants note that while Figs. 2A - 2D of Mizuno discloses imaging of defects, in accordance with the disclosure and teaching of Mizuno, the determined defects are classified into types of defects and information of the type and location is stored. Thus, whether or not Mizuno obtains images of defect candidates in the manner as illustrated in Step 11 (in Fig. 3 of Mizuno), in the following steps (12 - 15), Mizuno discloses classifying the defect and outputting results of the classification and not an image of the defect. Mizuno, in Fig. 6A shows specified points of defects of a wafer in a map format, and Fig. 6B shows the type of defect in accordance with the classification thereof, as represented by the number in rectangles or triangles, at the specified locations in the map format which defect classification is not an image of an extracted defect or detected defect candidate. More particularly, column 7, lines 18 - 30 of Mizuno specifically points out that Fig. 6A shows the specified points to be inspected on the wafer map and Fig. 6B shows the result of defect classification. As described throughout Mizuno, and in particular,

in column 6, lines 37 - 44", an image signal is converted into a digital signal by means of the A/D converter 21. The signal is then subjected to such image processing as noise removal by the processor 22 and stored in the image memory 23. The image stored in the image memory 23 is read out onto the display through the processor 22 and, at the same time, subjected to defect classification so that the result of the classification is overwritten on the specified point to be inspected on the wafer map. Thus, applicants submit that irrespective of the contentions by the Examiner, Mizuno does not disclose or teach in the sense of 35 USC 103, displaying on the screen an image of a defect candidate selected from the output images of the extracted defect candidates (which outputted images of the extracted defect candidates are obtained in the manner set forth) together with the map format on the screen, and the displayed image of the defect candidate being displayed corresponding to location data designated on the map format displayed on the screen. As such, applicants submit that independent claims 5, 6 and 16 recite features not disclosed or taught by Mizuno in the sense of 35 USC 103 and all claims should be considered allowable thereover.

With respect to Hardikar et al which is utilized in combination with Mizuno, the Examiner refers to column 8, lines 18 - 16 of this patent contending that Hardikar et al teach displaying together with the map format on the screen an image of a defect candidate selected from the outputted images of the extracted defect candidates. Irrespective of the Examiner's contention concerning Hardikar et al, applicants submit that column 8, lines 18 - 67, and in fact, column 8, line 3 to column 9, line 12 described classifications of defects in conjunction with Figs. 6A-6E, and applicants submit that there is no disclosure or teaching in Hardikar et al of outputting images of

defect candidates in the manner recited in the claims of the this application together with information of location data, and thereafter displaying on a screen in a map format the defect candidate location data, and displaying on the screen an image of a defect candidate selected from the output images of the extracted defect candidates together with the map format on the screen, the displayed image of the defect candidate being displayed corresponding to location data designated on the map format displayed on the screen. While the Examiner has characterized Hardikar et al utilizing language similar to that presented in the claims, applicants submit that no such disclosure is present in Hardikar et al, and Hardikar et al has been mischaracterized by the Examiner. Thus, irrespective of the contentions by the Examiner, Hardikar et al does not overcome the deficiencies of Mizuno, as pointed out above, and applicants submit that all claims patentably distinguish over this proposed combination of references in the sense of 35 USC 103 and should be considered allowable thereover.

As to the further combination of Gallarda et al with Mizuno and Hardikar et al, this patent also fails to disclose the display on the same display screen of the map format of location data of extracted defect candidates and an image of a defect candidate selected from outputted images of the extracted defect candidates in the manner set forth in the claims of this application. Thus, applicants submit that all claims patentably distinguish over the cited art and should be considered allowable thereover.

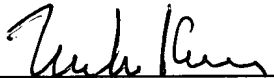
With respect to the dependent claims, applicants submit that the dependent claims recite further features of the present invention, when considered in

conjunction with the parent claims further patentably distinguish over the cited art in the sense of 35 USC 103 and should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application patentably distinguish over the cited art and should now be in condition for allowance. Accordingly, issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (501.41125X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



Melvin Kraus
Registration No. 22,466
ANTONELLI, TERRY, STOUT & KRAUS, LLP

MK/jla
(703) 312-6600